REMARKS/ARGUMENT

Claim 1 has been amended to more clearly define Applicants' invention. Claim 2 has been amended so as to be consistent with the amendment to claim 1. Claims 11 and 12 have been added to more adequately protect Applicants' invention.

Reconsideration of the application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 1, 2, 4, 6 and 8-10 stand rejected under 35 U.S.C. §102(b) as being anticipated by Sawada, et al., "A Super Low-Noise [DC-HFET]". Claims 1, 2, 4, 6, 8 and 9 also stand rejected under 35 U.S.C. §102(b) as being anticipated by Sawada, et al. (U.S. Patent No. 5,404,032). Applicants respectfully traverse these rejections.

Applicants' invention, as reflected in amended independent claim 1, is directed to a field-effect semiconductor device comprising, *inter alia*, a channel layer; a contact layer; a semiconductor structure having a first junction face between the semiconductor structure and the channel layer and having a second junction face between the semiconductor structure and the contact layer; an ohmic electrode formed on the contact layer; and a Schottky electrode formed on the semiconductor structure. The first junction face between the channel layer and the semiconductor structure and the second junction face between the contact layer and the semiconductor structure are iso-type heterojunctions. The channel layer and the semiconductor structure at the first junction face are each formed of doped layers and the contact layer and the semiconductor structure at the second junction face are each formed of doped layers. The semiconductor structure further includes an undoped layer intermediate the doped layers thereof.

In contrast, both Sawada, et al. references disclose a doped semiconductor structure, i.e., a doped barrier layer. More specifically, each discloses a single doped layer as the barrier layer and neither discloses a barrier layer comprising a doped layer at the junction between the channel layer and the semiconductor structure, a doped layer between the contact layer and the semiconductor structure and an undoped layer intermediate the doped layers.

In view of the foregoing, it is respectfully submitted that claim1 is not anticipated by either Sawada, et al. reference. Further, neither reference suggests that the semiconductor structure, i.e., the barrier layer, be comprised of two doped layers having an intermediate undoped layer.

Accordingly, it is respectfully submitted that claim 1 is not rendered obvious by either of the Sawada, et al. references.

Claims 2, 4, 6 and 8-10 are dependent either directly or indirectly from claim 1 and are, therefore, patentable for the same reasons, as well as because of the combination of the features set forth in these claims with the features set forth in the claim(s) from which they depend.

Claims 3, 5 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over either one of the Sawada, et al. references. As noted above in connection with claim 1, neither of the Sawada, et al. references discloses or suggests a semiconductor structure, comprised of an undoped layer intermediate doped layers at the first and second junctions. Since claims 3, 5 and 7 are dependent either directly or indirectly from claim 1, it is respectfully submitted that these claims are patentable for the same reasons as claim 1, as well as because of the combination of the features set forth in these claims with the features set forth in the claim(s) from which they depend.

New claim 11 is directed to a field-effect semiconductor device which, like claim 1, has a semiconductor structure comprising an undoped layer intermediate doped layers at the first and second junctions. Accordingly, claim 11 is patentable over the Sawada, et al. references for the same reasons as claim 1.

In addition, claim 11 specifies that the Schottky electrode is in contact with the undoped layer. In contrast, both Sawada, et al. references disclose that the respective Schottky electrode thereof is in contact with the doped layer of the semiconductor structure at the first junction. More specifically, in each of the references, the Schottky electrode is in contact with the respective n-doped AlGaN barrier layer. In contrast, as noted above in accordance with Applicants' invention, as defined in amended independent claim 1, the Schottky electrode is in contact with an undoped layer which is located intermediate the doped layers at the first and second junctions.

In view of the foregoing, it is respectfully submitted that claim 11 is clearly patentable over either Sawada, et al. reference. Claim 12 is dependent from claim 11 and is, therefore, patentable for at least the same reasons, as well as because of the combination of the features set forth in claim 12 with the features set forth in claim 11.

In view of the foregoing, this application is now believed to be in condition for allowance, which action is respectfully requested.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on January 23, 2002:

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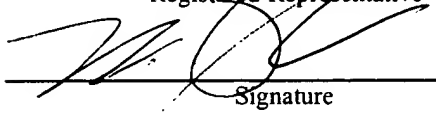
Name of applicant, assignee or Registered Representative



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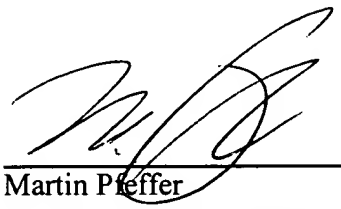
Respectfully submitted,



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